

**Method for loading a fibrous stock suspension  
and arrangement to accomplish said method.**

**Patent Claims**

1. Method for loading a fibrous stock suspension containing chemical pulp fibers with calcium carbonate, comprising the following process steps:
  - Adding calcium hydroxide in liquid or dry form, or calcium oxide into the fibrous stock suspension,
  - Adding gaseous carbon dioxide into the fibrous stock suspension,
  - Precipitation of calcium carbonate through the carbon dioxide and
  - Refining of the fibrous stock suspension during the fiber loading process.
2. Method according to claim 1,  
**characterized in that**  
a refining force in the range of between 0.1 and 300 kWh per ton of dry paper pulp is applied, whereby the loading process and the refining process are accomplished in a disperger (42).
3. Method in accordance with claim 1 or 2,  
**characterised in that**  
aqueous fibrous stock material, especially aqueous paper stock having a consistency of 0.1 to 20%, preferably between 2 and 6% is used as primary raw material.
4. Method in accordance with one of the claims 1 through 3,  
**characterized in that**

the calcium hydroxide is mixed into the aqueous fiber stock material, especially into the paper fiber stock, whereby this has a solids content of between 0.01 and 60%.

5. Method in accordance with claim 4

**characterized in that**

the calcium hydroxide is added through a static mixer (16) or through an intermediate vat.

6. Method in accordance with one of the claims 1 through 5,

**characterized in that**

the carbon dioxide is mixed into a moist fibrous stock suspension.

7. Method in accordance with one of the claims 1 through 6,

**characterized in that**

a refiner (80), a disperger (42) and/or a fluffer FLPCC reactor are utilized as a reactor and/or a static mixer, whereby the fibrous stock content, especially the paper content is between 0.01 and 15% in the instance of a static mixer; at between 2 and 40% in the instance of a refiner (80) and a disperger (42) and between 15 and 60% in the instance of a fluffer-FLPCC-reactor.

8. Method in accordance with one of the claims 1 through 7,

**characterized in that**

the dilution water is supplied prior to, during or after the addition of carbon dioxide or calcium hydroxide or calcium oxide.

9. Method in accordance with one of the claims 1 through 8

**characterized in that**

an expenditure of energy of between 0.3 and 8 kWh/t, especially between 0.5 and 4 kWh/t is used.

10. Method in accordance with one of the claims 1 through 9,

**characterized in that**

the process temperature is provided between -15 °C and 120 °C, especially between 20 and 90 °C.

11. Method in accordance with one of the claims 1 through 10,

**characterized in that**

rhombohedral, scalenohedron and spherical crystals are produced.

12. Method in accordance with claim 11,

**characterized in that**

the crystals measure between 0.05 and 5 µm, especially between 0.3 and 2.5 µm.

13. Method in accordance with one of the claims 1 through 12,

**characterized in that**

static and/or moving, especially rotating mixing elements (68) are utilized.

14. Method in accordance with one of the claims 1 through 13,

**characterized in that**

it is carried out in a pressure range of between 0 and 15 bar, especially between 0 and 6 bar.

15. Method in accordance with one of the claims 1 through 14,

**characterized in that**

it is carried out at a ph value of between 6 and 10, especially between 6.5 and 9.5.

16. Method in accordance with one of the claims 1 through 15,

**characterized in that**

the reaction time is between 0.01 and 1 minute, especially between 0.05 and 10 seconds.

17. Arrangement to execute a method in accordance with one of the claims 1 through 16.

18. Apparatus to execute a method in accordance with one of the claims 1 through 17,

**characterized in that**

it comprises a static mixer (16) mixing calcium hydroxide into a fibrous stock suspension and a disperger (42) and/or a refiner for refining and/or fluffing of the fibrous stock suspension and to precipitate the calcium hydroxide in a carbon dioxide atmosphere while creating fibers that are loaded with calcium carbonate in the fibrous stock suspension